

EPAct/EISA Test Programs in ASD 21st Bi-Weekly Report

December 18, 2008

1. Light Duty Gas Exhaust Fuels

Contractor: SwRI, EP-C-07-028, WA 0-1, WAs 1-1, 1-2, 1-3, 1-4

WAM: Connie Hart Alt. WAM: Rafal Sobotowski

Other team members: Mike Christianson, Tony Fernandez, Carl Fulper, Aron Butler Budget: \$4.3M, plus \$3M in collaboration with NREL Now \$5M, plus NREL

Objective: Phases 1 and 2 are in support RFS 2 NPRM and Phase 3 is to establish the effects of RVP, T50, T90, aromatic and EtOH content on exhaust emissions from Tier 2 vehicles

Time Line

- Testing began by second week of April
- Phase 1 and half of Phase 2 finished by the end of June: Fuels 17 and 18 of Phase 1 were complete by end of June. Fuel 19 by end of July due to fuel delivery delays. Phase 2 to start by mid-September.
- Phase 3 will be finished May 2009: Phase 3 to be complete by January 2010 between testing/fuel delays to date and additional CRC fuels added into our random matrix.

Program Status:

- Fuel status for Phase 3:
 - o All eight E0 fuels have been shipped if not delivered to SwRI
 - Halterman is reblending Fuel #5.
 - o E10 fuels:
 - 1 has been shipped to SwRI
 - 5 have been approved for bulk blending.
 - E20 fuels:
 - 1 is in the hand blending stage.
 - 2 have been approved for bulk blending.
 - All fuels should be ready (at least approved for bulk blending) by February when Phase 3 testing shall begin
- Phase 2 cold room testing status:
 - Fuel 17 completed testing last week.
 - o Fuel 18 started testing this week.
 - o Phase 2 expected completion by end of January 2009.
- Data/Analysis:
 - O Data has started coming in for Phase 2, Fuel 17. working on quality checks, analysis.
 - o Investigation continuing on calculation of NMOG.

1.a. Supplemental Testing

Contractor: SwRI, EP-C-07-028, and NVFEL

Lead: Tony Fernandez WAM: Connie Hart Alternate WAM Mike Christianson

Other team members: Aron Butler

Budget:

Objective: Gather additional information during vehicle down-time to answer questions arising from test results to date.

Time Line

Testing to occur at SwRI before and after Phase 2, while waiting for cold room to be fully functional.

Program Status:

- Testing of the 6 (of 19) vehicles on fuels 17, 18 and 19 has been completed.
 - o Data is being QA/QC'd and analyzed.
- 2 Tier 1 CRC vehicles which were shipped from Phoenix are being prepared for testing. They will be tested after Phase 2 is completed.
- We are in discussions, pushing back on costs which will affect Phase 3 as well, before approving this Work Plan.

2. Oil Study

NVFEL Contractor:

Project lead: Mike Christianson, Rafal Sobotowski

Budget:

Objectives: Results to impact Phase 3 of EPAct study at SwRI (July)

Objective 1: Define duration of engine oil conditioning needed to stabilize the effect of oil

volatility on PM emissions

Objective 2: Define the impact of lubricant interaction with fuel ethanol on PM emissions

Time Line

Estimated duration of pilot: 15 weeks (May 11)

Program Status:

No updates to report.

3. PM Speciation

Contractor: **NVFEL** Project lead: Mike Christianson, Marion Hoyer

Other team members: Rafal Sobotowski, Joe McDonald

Budget: \$345K (\$55K on inventory and data issues from other EPAct programs)

<u>Objective</u>: To determine fuel effects on PM mass, size and composition, and obtain speciated semi-volatile VOC, metals and ions, and gaseous VOC (MSATs), alcohols and carbonyls.

Time Line: Late 2008 (to take place in 2009)

Program Status:

- Proceding with NRML site modifications plan.
- A site visit of the NRML Chemisty Lab is scheduled for the end of January.

4. Nonroad Exhaust Program

Contractor: Carnot Intertek WAM: Cheryl Caffrey

Alt. WAM:

Budget: \$830K

Project Overview:

Objective: Testing 6 paired engines including 2 Class 1, 2 Class 2, 2 Class 4, (one Class 2 engine has catalyst) on three fuels; national average non-oxy gasoline (Fuel A), an octane matched E10 (Fuel B), and a certification fuel (E0).

Timeline

- The original program was to be completed last year
- Should begin by April 1st and finish in October of this year: delays in schedule due to fuel delivery status.

Program Status

• Two Poulan engines are being aged. Emissions testing should be complete in January.

4.a. Nonroad Exhaust tie-in with CARB

Contractor: SwRI

WAM: Cheryl Caffrey

Alt. WAM:

Other team members: Tony Fernandez

Budget: \$500K

Program Status

- One small engine has been emission tested in conjunction with ARB.
- o Emission testing has stopped until January due to the holidays.
- o One ATV at SwRI, ready for testing.
- Ready to purchase two 2-stroke nonroad motorcycles
- Looking for a catalyzed large SI engine.

5. Evap Testing

Contractor: SwRI, EP-C-07-028, WA 1-5

WAM: Connie Hart Alt. WAM: Dave Brzezinski

Other team members: Tony Fernandez

Budget: \$600K

<u>Objective</u>: Additional, newer technology, high sales volume vehicles to the CRC E-77-2 permeation test program.

Time Line: Testing from June 2008 thru June 2009: Testing started in fall.

Program Status:

- Four vehicles have Static and Dynamic Permeation tests, and two have completed a Diurnal on E10, 10psi fuel.
- A briefing for Chet was given on December 11.
- The E-77 Summit on December 17:
 - o Productive discussions to move the suite of projects forward.
 - Rafal was asked to help prepare recipes for the two E20 fuels in the E-77-2c program contracted by CRC and NREL. A CRC fuels panel will be formed.

6. Determine Percent of High Evaporative Vehicles in Fleet

Contractor: ERG, EP-C-06-080, WA 1-2, 2-2

WAM: Connie Hart Alt. WAM: Dave Brzezinski

Other team members: Carl Fulper, Tony Fernandez, Jim Warila

Budget: \$1M

<u>Objective</u>: Find the percentage of high emitting evaporative emission vehicles in the average fleet of on-road motor vehicle passenger cars and light trucks.

Time Line

- ICR clock started with Federal Register notice 2/14/08
- SOW package went to Cincinnati 2/22/08
- Approval of Work Plan by March 24: Work Plan was approved June 19 (after CRADA signed).
- Contractor to supply supporting documents for ICR submission March 31: delivered May 8th
- Another 30 day comment period for ICR, roughly month of May.

- Goal is to have ICR in place by mid-June for recruitment and pilot field work to begin. Partial ICR approval has been given for the Pilot phase.
- Finalize test procedure for larger program by August 22 so recruitment can begin for field work in Sept and October. Larger program to be defined by end of September for small version of larger program to occur in fall.
- Compile data and draft report by early December of 2008. Larger program is planned for spring of 2009, report end of summer 2009.

Program Status:

- The San Antonio Pilot is completed:
 - o ERG QA/QCing and analyzing the data.
 - Lessons learned:
 - Need more lead time for recruitment
 - To recruit more high evap need to focus calls on vehicles in high RSD index bins
 - Temperature important at time of evaluating vehicles
 - CRC concerned with repeatablility of high evap emissions when looking at the Lab SHED correlations; suggestion to do some work here to investigate before proceeding
- Looking for funds for larger program.
 - Discussions with CRC and API at the E-77 Summit